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KONRAD RAYNES & VICTOR, LLP
ATTN: IBM54
315 SOUTH BEVERLY DRIVE, SUITE 210
BEVERLY HILLS, CA 90212

EXAMINER	
RADTKE, MARK A	

ART UNIT	PAPER NUMBER
2165	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/648,008	JIN ET AL.	
	Examiner	Art Unit	
	Mark A. X Radtke	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-8,10-14,16-18,20-24,26-28 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8,10-14,16-18,20-24,26-28 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. In response to communications filed on 13 July 2006, claims 5, 9, 15, 19, 25 and 29 have been cancelled and claims 1, 7, 11, 17, 21 and 27 is/are amended per Applicant's request. Therefore, claims 1-4, 6-8, 10-14, 16-18, 20-24, 26-28 and 30 are presently pending in the application, of which, claims 1, 7, 11, 17, 21 and 27 are presented in independent form.

2. In response to Applicant's arguments and amendments, the claim objections and rejections under 35 U.S.C. 112 and 101 cited in the previous Office Action have been withdrawn. Examiner will read "applying conditions" as recited in the claims; however, Examiner asserts that "conditionally deleting" teaches "applying conditions", so Examiner's narrower reading is valid for the purposes of prior art rejections. Examiner also notes that Applicant's amendments directed towards 35 U.S.C. 101 rejections eliminate transmission signals and carrier waves as possible embodiments of the invention. Please also note that the amendments have necessitated additional rejections under 35 U.S.C. 112 and 101.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-4, 6-8, 10-14, 16-18, 20-24, 26-28 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 1-4, 6-8, 10-14, 16-18, 20-24, 26-28 and 30 recite the limitation "input duplicates" in line 5 (in claim 1). There is insufficient antecedent basis for this limitation in the claim. For the purposes of examination "input duplicates" will be considered "entries that were classified as update rows". This was Examiner's assumption in the previous Office Action, however the manner in which the input duplicates are used in the amended step of "automatically re-applying" is not necessarily consistent with this interpretation and has necessitated these new grounds for rejection.

6. Claims 1-4, 6-8, 10-14, 16-18, 20-24, 26-28 and 30 recite the limitation "unique index entries" in line 11 (in claim 1). There is insufficient antecedent basis for this limitation in the claim. No suitable interpretation of this phrase can be made because only keys corresponding to "input duplicates" are stored in the second structure. Therefore, it would be impossible for any unique keys to be stored there. Each "input

duplicate" would have at least two keys stored into the second structure (see the step of "processing each input row" and Examiner's comments regarding 35 U.S.C. 101).

7. Dependent claims are rejected because they depend from rejected independent claims.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-4, 6-8, 10-14, 16-18, 20-24, 26-28 and 30 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. The claims, as amended, would function as follows:

1) receive input rows to be loaded into output table

2) determine whether each input row is an insert row (non-duplicate) or update row (input duplicate) in the output table; append update rows to output table; add keys for those update rows to second structure. The output table now consists of the original entries and updated duplicate entries; this would render the invention inoperable because most databases strictly enforce unique values for primary keys and this step would append duplicate entries with duplicate keys. The second structure consists of matched keys from either the original output table or

keys from the input rows (see rejections under 35 U.S.C. 112, second paragraph).

3) re-apply input duplicates to first structure by removing the input duplicates and applying the input duplicates to matching original rows in the first structure. The output table is purged of all duplicate entries, for example entries wherein the same key appears twice in the same key index. Then the duplicates are applied again. This would again add duplicate keys to the table, again "breaking" the uniqueness of index keys. This step, as claimed, is redundant and produces no net effect on the output table.

4) Merge indices from second structure to output structure. This step may imply that indices are applied when the output structure is modified in the preceding steps, but, as illustrated in figure 6A of the instant specification, the primary keys are part of the input rows and there is no limitation in the claims that indicates keys would not be applied with the rest of the columns in a row. Furthermore, this step would not overcome the duplicate key problems in the preceding steps. As claimed, this step is also redundant.

The result of the claims, as written, would be an output table that consists of the original table plus the input duplicates. Each input duplicate and the original entry would have the same key and would violate the uniqueness of primary keys in the database. In addition, the invention fails to carry out its usefulness as best understood from the specification and telephone interview because insert rows would be discarded. In fact,

in the independent claims, no operation is performed on insert rows after they are classified.

Therefore, the independent claims are also rejected under 35 U.S.C. 101 because they lack concreteness. No steps are defined to handle "insert rows", so the steps of the process are not fully deterministic. Examiner suggests adding a limitation that recites inserting "insert rows" into the output table.

10. Dependent claims are rejected because they depend from rejected independent claims.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-4, 6-8, 10-14, 16-18, 20-24, 26-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thusoo et al. (U.S. Patent 7,016,903) in view of Oracle ("MERGE Statement", available online at http://www.oracle.com/technology/products/oracle9i/daily/Aug24.html, Posted 24 August 2001). Examiner notes that an updated search was made in light of the claims as they

were best understood. The inoperable nature of the amended invention (see Examiner's comments regarding rejection under 35 U.S.C. 101 and 112) means that the art rejections below are made given the best understanding of the presented claims.

As to claim 1, Thusoo et al. teaches a method for processing input data (see Abstract) comprising:

receiving multiple input rows to be loaded into a first structure, wherein the first structure is an output table (see Abstract and figure 2, Dest. Table 110);

processing each input row of the multiple input rows to classify each input row as one of an insert row and an update row (see figure 4, step 170), wherein input duplicates are appended to the first structure (see figure 4, step 175) and index entries for the input duplicates are stored in a second structure (see figure 4, step 180 and see also column 8, lines 12-20); and

after the multiple input rows have been processed,

automatically re-applying the input duplicates to the first structure (see figure 5, step 255 and column 8, lines 39-41); and

merging unique index entries from the index entries stored in the second structure to a primary key index (see figure 5, step 255 and column 8, lines 37-39).

Thusoo et al. does not explicitly teach by removing the input duplicates from the first structure and applying the input duplicates to matching original rows in the first structure.

Oracle teaches by removing the input duplicates from the first structure and applying the input duplicates to matching original rows in the first structure (See "Oracle8*i* Implementation", UPDATE statement, "SET d_parts = d_parts + s_parts...". Applying an update operation is functionally equivalent to removing and applying).

Therefore, it would have been obvious to one having ordinary skill in the relevant art at the time the invention was made to have modified Thusoo et al. by the teaching of Oracle because they are both related to the same problem, efficiently implementing UPSERT operations.

As to claims 2, 12 and 22, Thusoo et al., as modified, teaches further comprising:

identifying duplicates in the index entries in the second structure (see column 8, lines 36-37); and

storing the identified duplicates in a third structure (see column 8, lines 28-31 and see also column 5, table 3).

As to claims 3, 13 and 23, Thusoo et al., as modified, teaches wherein the processing of the input data further comprises order insensitive processing of input duplicates (see column 5, lines 38-41 wherein order sensitivity is optionally taught).

As to claims 4, 14 and 24, Thusoo et al., as modified, teaches wherein the processing of the input data further comprises order sensitive processing of input duplicates (see column 5, lines 38-41 wherein order sensitivity is optionally taught).

As to claims 6, 16 and 26, Thusoo et al., as modified, teaches further comprising:

when an input duplicate is characterized as an update row, updating a corresponding row in the output table (see column 8, lines 39-41).

As to claim 7, Thusoo et al. teaches a method for processing input data (see Abstract), comprising:

loading one or more input rows into an output table, wherein input duplicates are appended to the output table, index entries for the input rows are stored in a first structure and discarded input rows are stored in a third structure, wherein the discarded input rows are input rows that are rejected based on a condition (see Abstract and figure 2, Source Table 100);

periodically interrupting the loading of the one or more input rows to perform an index merge, wherein input duplicates for which corresponding index entries in the first structure are not added to an index are stored in a second structure (See figure 4, steps 165-185. Loading is interrupted after every row in the decision made by step 185 to check for more data.);

determining whether to add data for one or more discarded input rows in the third structure to the second structure (see figure 4, step 180 and see also column 8, lines 12-20);

when it is determined that the data for one or more discarded input rows in the third structure are to be added to the second structure, adding the data for the

discarded input rows to the second structure (see figure 5, step 255 and column 8, lines 37-39); and

automatically reapplying input duplicates and discarded input rows for which data is stored in the second structure to the output table (see figure 5, step 255 and column 8, lines 39-41).

Thusoo et al. does not explicitly teach by removing the input duplicates from the first structure and applying the input duplicates to matching original rows in the first structure.

Oracle teaches by removing the input duplicates from the output table and applying the input duplicates and the discarded input rows to matching original rows in the output table (See "Oracle8*i* Implementation", UPDATE statement, "SET d_parts = d_parts + s_parts...". Applying an update operation is functionally equivalent to removing and applying).

Therefore, it would have been obvious to one having ordinary skill in the relevant art at the time the invention was made to have modified Thusoo et al. by the teaching of Oracle because they are both related to the same problem, efficiently implementing UPSERT operations.

As to claims 8, 18 and 28, Thusoo et al., as modified, teaches wherein determining whether to add the data for one or more discarded input rows in the third structure to the second structure further comprises:

searching for discarded input rows in the third structure with corresponding rows in the second structure and in the output table to identify potential input duplicates (see column 8, lines 36-37); and

applying conditions to the discarded input rows that are potential input duplicates (see column 8, lines 28-31 and see also column 5, table 3).

As to claims 10, 20 and 30, Thusoo et al., as modified, teaches wherein the processing of the input data further comprises at least one of order sensitive processing and order insensitive processing (see column 5, lines 38-41).

As to claim 11, Thusoo et al. teaches an article of manufacture comprising one of hardware logic implementing logic and a computer readable storage medium including a program for processing input data wherein the logic or program causes operations to be performed (see Abstract), the operations comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 1 above.

As to claim 17, Thusoo et al. teaches an article of manufacture comprising one of hardware logic implementing logic and a computer readable storage medium including a program for processing input data, wherein the logic or program causes operations to be performed (see Abstract), the operations comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 7 above.

As to claim 21, Thusoo et al. teaches a computer system having at least one program for processing input data (see Abstract) comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 1 above.

As to claim 27, Thusoo et al. teaches a computer system having at least one program for processing input data (see Abstract), comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 7 above.

Response to Arguments

13. Applicant's arguments filed on 17 July 2006 with respect to the rejected claims in view of the cited references have been fully considered but are not deemed persuasive.

In response to Applicant's argument that "the Thusoo patent does not describe that input duplicates are appended to the first structure", the arguments have been fully considered but are not deemed persuasive. In column 5, lines 40-44, Thusoo et al. teaches "the result set of the outer join command may advantageously contain each row

from Table 1 (source)". This means that both the source and destination entries will exist in the output table.

In response to Applicant's argument that "the Thusoo patent does not describe that there is automatic re-application of the input duplicates to the first structure by removing the input duplicates from the first structure and applying the input duplicates to matching original rows in the first structure", the arguments have been fully considered but are moot in view of the new grounds of rejection.

Additional References

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following non-patent literature is cited to further show the state of art with respect to database merge operations in general:

"Load and transform external data into Oracle 9i", by Akadia. Available online at http://www.akadia.com/services/ora_etl.html#The%20MERGE%20Statement.

"Using Pipelined Table Functions (Oracle 9i)" by Toji Mammen George. Published 12 March 2003. Available online at http://www.codeguru.com/cpp/data/mfc_database/oracle/article.php/c4285/.

"Oracle9i Database Daily Features Archives – August", by Oracle. Available online at http://www.oracle.com/technology/products/oracle9i/daily/aug2001.html. Cited for teaching the publication date of Oracle reference cited above.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications should be directed to the examiner, Mark A. Radtke. The examiner's telephone number is (571) 272-7163, and the examiner can normally be reached between 9 AM and 5 PM, Monday through Friday. If attempts to contact the examiner are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached at (571) 272-4146. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Customer Service at (800) 786-9199.

Frantz Coby
FRANTZ COBY
PRIMARY EXAMINER

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30 September 2006